

MASTER ACTIVATORS OF PATHOGEN RESPONSIVE GENES

ABSTRACT OF THE DISCLOSURE

Disclosed is a complete plant MAP kinase cascade (e.g., MEKK1, MKK4/MKK5, and MPK3/MPK6) and WRKY22/WRKY29 transcription factors that function downstream of the flagellin receptor FLS2, a leucine-rich-repeat (LRR) receptor kinase. Activation of such a MAPK cascade confers resistance to both bacterial and fungal pathogens. Also disclosed are disease-resistant plants expressing one or more members of this MAP kinase signaling cascade. Such members include constitutively active MEKK1 ( $\Delta$ MEKK1), MKK4 (MKK4a), and MKK5 (MKK5a) or wild-type WRKY29.

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